



ABSTRACT

Pneumatic conveyor is the one type of conveying machines that commonly used in factories and plants for transporting bulk materials. Pneumatic conveying maybe defined as the art of transporting bulk materials through a pipeline by either a negative or positive pressure air stream. The group of pneumatic conveyors comprises piping system with pressure supply from compressor or blower and moving material from material intake to the discharge point.

The positive pressure pneumatic conveyor is one type of conveying machines. Coal-fired steam power plant using the pneumatic conveyors for transporting its fly ash. Fly ash is transferred from the electrostatic precipitator hopper to the ash storage silo where the ash handling plant placed in the ground floor. The pneumatic conveyor used for moving the fly ash from precipitator hoppers to fly ash silo where it has conveying distance horizontal 321 meters and vertical 17 meters. The pneumatic conveyor has maximum capacity 15 ton per hour. It is designed for heavy duty work; continuous operation per day. In this design, main component and auxiliary is calculated and analyze.

Screw air compressor is used as the pressure supply to the transporter and then conveying fly ash to the conveying pipe. Power required of the compressor is 18 kW and rotated by three-phase induction electrical motor. Speed of electrical motor is 3000 rpm. The pneumatic conveyor has initial conveying velocity of 12.76 m/s and material to air ratio of 15.38 kg material/kg air, and then categorized as dense phase system.